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ABSTRACT

This report examines one aspect of a broad experiment in language instruction designed and implemented at 10 participating colleges of the Associated Colleges of the Midwest. Two types of language laboratories (recording and nonrecording) are examined to determine the effect of each upon the cultural-orientation scores of the students. The scores of the two laboratory groups are also compared with scores of a precollege control group. The experiment measures students' cultural orientation, i.e., student empathy with foreign people, their form of government, and general acceptance of their ethos. Tests used in the experiment were modifications of those used by Scherer and Wertheimer in their experiments in this area. Concluding remarks focus on statistical procedures used in the analysis of data derived from the tests. (RL)

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*The Effects of Language Laboratory Type Upon Cultural Orientation Scores of Foreign Language Students**

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IN THE search for better understanding of the processes involved in the learning and teaching of foreign languages, we recognize the relevance of the field of psycholinguistics. A considerable amount of research effort has been directed toward this area.[1] The Associated Colleges of the Midwest (ACM)[2] conducted a program of research in the field of foreign language instruction at the college level. The research program was undertaken to examine and test various proposals for improvement which would provide assistance to the individual colleges in their search for ways to strengthen foreign language courses.

The research of this program took place in what we might call a "field" setting. By a field setting we mean the actual educational situation in foreign language instruction as it existed in the colleges. The situation for this research was relatively broad since it cut across the ten colleges. Not all colleges participated in all experiments, but every college was involved in at least one. This then was not a maximumly controlled experiment as in the study by Scherer and Wertheimer.[3] The writers recognize that several uncontrolled factors, such as the teacher, existed in this research. However, because of the broad setting, the results pertain directly to foreign language instruction in colleges similar to those of the ACM.

One of the experiments involved the use of two types of language laboratories. These types are described in detail below. The types of laboratories were then examined to ascertain the effects, if any, upon various student measures. Specifically, the problem reported here dealt with effect of type of laboratory upon the cultural orientation scores of the students. The scores of the two laboratory groups were also compared to scores of a pre-college control group. These were beginning freshmen who had not had foreign language instruction at the college level.

Background and Description of Tests

The psychological testing program of ACM was developed in order to examine measures such as the cultural orientation of students. The tests were modifications of those used by Scherer and Wertheimer. In consultation with Professors Scherer and Wertheimer of the University of Colorado and with Dr. Wallace Lam-

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[1] Among the persons and institutions having conducted research, in addition to the Associated Colleges of the Midwest program which is partially described in this article, were Wallace E. Lambert, Donald O. Hebb and G. A. Ferguson (McGill University), John B. Carroll (Harvard University), C. E. Osgood (University of Illinois), Susan Ervin (University of California, Berkeley), Paul Pimsleur (Ohio State University), and George A. Scherer and Michael Wertheimer (University of Colorado).

[2] Beloit College, Beloit, Wisconsin; Carleton College, Northfield, Minnesota; Coe College, Cedar Rapids, Iowa; Cornell College, Mt. Vernon, Iowa; Grinnell College, Grinnell, Iowa; Knox College, Galesburg, Illinois; Lawrence University, Appleton, Wisconsin; Monmouth College, Monmouth, Illinois; Ripon College, Ripon Wisconsin and St. Olaf College, Northfield, Minnesota. The program was under the direction of Klaus A. Mueller, then Coordinator of Foreign Language Programs. William Wiersma was the Psychometric Consultant for the project.

[3] George A. Scherer and Michael Wertheimer, *A Psycholinguistic Experiment in Foreign Language Teaching*, New York: McGraw-Hill, 1964.

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bert, who constructed several of the instruments used in the Colorado study, the authors selected a number of the tests used at Colorado. These tests were used either directly or with appropriate modifications.

This report is concerned only with those instruments designed to measure students' cultural orientation, i.e., student sympathy with foreign people, their form of government and general acceptance of their ethos. The following instruments were used; the descriptions of the measures and the sources are listed below:

Measure	*Source*
Phylophilia—fondness of the student for the culture connected with the language studied.	Total score on Colorado Form V, "Germanophilia," 1–25.[4]
Anomie—the degree of dissociation from one's own culture.	Score on Colorado Form V-B (13-item series, each with a seven-point scale).

Attitudes toward language centered concepts	*Selected items from Colorado Test XI*
The people in their own country (as "German people in Germany"; "French people in France").	Form XI, #2[5]
The people (Frenchmen, Germans or Spaniards, whichever appropriate) in this country.	Form XI, #7
"My language teacher."	Form XI, #8
Attitude toward myself when speaking English.	Form XI, #9
Attitude toward myself when speaking the foreign language (French, German or Spanish, whichever is appropriate).	Form XI, #10
Difference score; i.e., sum of differences between parts of Items 6 and 7. This indicates a difference in the student's self-concept when he thinks of himself in the abstract, as an English speaker or a foreign language speaker.	

Two types of language laboratories were used in the experiment. The two types were: 1. non-recording and 2. recording laboratories. A brief description of the types is as follows:

Non-recording: listening, repeating without recording.

Recording: listening, repeating, recording, playback with completely flexible, individual dual-channel twin amplified tape deck at each station.

In the non-recording labs the student listens and speaks into a microphone and his utterances are transmitted to him through earphones but are not recorded. In the recording labs, the student at each position responds and records either individually or in concert with other students. In both laboratory types there is a central console at which a monitor can hear each student's speech and can communicate with the students either singly or in groups.

Procedure:

The students who participated in the testing were enrolled in freshmen year college level classes in Spanish, French, and German. At the time of assignment to classes, students did not know what type of laboratory they were taking. Within the bounds of scheduling, the students were randomly assigned to the laboratory type. It is extremely unlikely that the administrative procedure of scheduling had any bearing upon the cultural orientation scores. The instructional period was the academic year. The students were tested late in the second semester during May, 1963. Close to 700 students participated in the two types of laboratories. Approximately 200 entering freshmen were tested in the early fall of 1963. These students were included as a "control" group and their scores were considered to be indications of "pre-college" attitudes.

Analysis and Results:

An analysis of variance was conducted on each cultural orientation measure to check for significant differences between the means of the two experimental groups. Results of this analysis appear in Table 1.

[4] Given as a sample in Appendix II.

[5] Given as a sample in Appendix III; other Form XI evaluations use the same scale.

TABLE I

MEANS AND F-RATIOS FOR CULTURAL ORIENTATION MEASURES

Measure	Mean		N	F-ratio
	Non-Recording	Recording		
Phylophilia	86.7	81.1	691	4.94*
Anomie	31.4	28.0	691	2.68
Foreigners in their Country	92.9	88.8	678	1.11
Foreigners in this Country	89.3	83.8	663	3.87*
My FL Teacher	100.3	99.4	677	—
Me Spkg. English	92.1	92.1	670	—
Me Spkg. FL	77.3	77.5	659	—
Difference Score	24.7	26.1	637	—

* Significant at the .05 level.

The difference between the means of the two groups was significant for only two measures: Phylophilia and Foreigners in their Country. The Non-Recording Group had a greater degree of Phylophilia, and on five of the eight measures it had the greater mean. Two measures indicated practically identical means for the two groups and on one measure (the difference score) the recording group attained the greater mean.

The students were also asked to estimate the number of hours spent per week in the study of the language. The mean numbers of hours were 9.8 and 6.8 for the non-recording and recording groups respectively. This difference was statistically significant.

The mean scores of the two experimental groups were also compared to those of the pre-college control group. A Student's t-test for the difference between two means was used. Each experimental group mean was compared individually with the mean of the pre-college group. The mean scores for the pre-college group appear in Table 2.

The pre-college group also estimated their hours of outside study. The mean of this estimation was 7.4 hours. The reader is reminded that the responses of this group were based on very limited instruction.

The actual values of the t-tests are not given. Instead, a table of relative position of the means on each measure is presented, summarizing the results of the analyses of variance and the t-tests. The relative positions of the three group means appear in Table 3. If a group is significantly higher at the .05 level than one or both of the other groups, a capital H is shown in the appropriate column. A capital L represents a significantly lower score. Lower case h and l are used to represent high and low mean scores that are not statistically significant.

TABLE 2

MEAN SCORES FOR PRE-COLLEGE CONTROL GROUP ON CULTURAL ORIENTATION MEASURES

Measure	Mean
Phylophilia	83.1
Anomie	29.0
Foreigners in their Country	86.7
Foreigners in this Country	81.8
My FL Teacher	98.7
Me. Spkg. English	89.4
Me Spkg. FL	77.9
Difference Score	22.6

TABLE 3

RELATIVE POSITIONS OF MEANS BY GROUP AND CULTURAL ORIENTATION MEASURE

Measure	Non-Recording	Re-cording	Pre-College
Phylophilia	H	L	H
Anomie	h	l	—
Foreigners in their Country	h	—	l
Foreigners in this Country	H	L	L
My FL Teacher	h	—	l
Me Spkg. English	—	h	l
Me. Spkg. FL	l	—	h
Difference Score	h	H	L

Dashes represent intermediate positions where there are no significant differences.

Conclusions and Discussion:

On the basis of the results of the experiment just reported, it can be concluded that students who worked in non-recording laboratories seemed more favorably disposed towards the foreign country and toward foreigners in this country than were the students who did their laboratory work in the more flexible laboratories.

In interpreting this data, it is well to remember that the students in the non-recording laboratories reported more time spent in study than did the students in the recording type labs. It should also be remembered that the students in both types of laboratories were studying in different colleges, and inter-college differences other than experimental differences may contribute to the results. As a matter of fact, the ACM study included an appraisal of differences among individual colleges.[6] This was an attempt to answer the question of whether there are significant differences in psychological factors on a college-by-college basis. The result of this appraisal indicates that there are many significant differences. As an example, it might be cited that a calculation of the significance of the difference between the highest and lowest colleges on the "anomie" scores show the significance to be at the .001 level. Although the differences are significant, there is no clear-cut pattern in which one college stands out above all the others in scores on all the measures.

It is interesting to note that the correlations between "phylophilia" and "anomie" are generally positive and of the magnitude of .20 to .50. Apparently the attraction of a foreign culture has some tendency to be associated with dissociation from one's native culture.

Every language teacher seeks to be alert to recognize interrelationships between his student's aptitude for languages and mastery of language skills on the one hand, and certain psychological factors on the other. Such relationships as this study and others show are not only difficult to recognize, they are even harder to state in provable form. An indirect approach to these questions was taken in the research program of the University of Colorado mentioned above. Ostensibly the design of experimentation was to measure the relative effectiveness of a "linguistic approach"; but indirectly there appeared some interesting results as by-products of the effort. The usefulness of these results is not that of well established and thoroughly tested facts, but that of suggestive clues. The ACM study, of which the experiment described above is a part, corroborated to a degree the results reported in the Colorado study. As suggestions, they both call attention to further experimental possibilities.

[6] See pages 228 to 230: Final Report, Office of Education, Contract Number 8833, "Experimental Refining and Strengthening of Undergraduate Foreign Language Curricula with Supporting Research in Teaching Techniques."

Appendix I—Statistical Procedures

The statistical procedures used in the study were one-way analysis of variance and the Students' t-test for the difference between two means. The basic question when observing two or more means from groups which have received different experimental treatments is: "Did this difference between means occur due to random errors or are there true differential experimental effects?" The analysis of variance and the students' t-tests are techniques by which we can determine the probability of the difference occurring by chance, that is, due to random errors. If this probability is less than .05 (less than 1 in 20) we say that it is unlikely that the difference occurred due to chance and conclude that the experimental conditions do produce differences between the groups in mean performance scores. The probability at or below which we reject the experimental hypothesis is referred to as the significance level. If the probability drops below this level we say that the statistical test is "significant."

The analysis of variance yields two estimates of variance. The one estimate is the estimate of variance due to individual differences. The second is an estimate of the same variance plus a component due to the difference between the means of the groups under study. If this differ-

ence is no more than expected due to random errors, the two estimates should be about the same. We take the ratio of the second estimate to the first, and this is called the F-ratio. As the F-ratio becomes increasingly large, its probability of resulting from random errors decreases, since the ratio becomes larger as its numerator increases. The numerator increases as the component due to differences between the means increases.

The situation in a true experimental design is to have operating only random chance effects and experimental effects. This is the situation of maximum control. In many educational research endeavors, maximum control is difficult to achieve, and for the purposes of this research it was impossible. This study encompassed several colleges, and many colleges did not (and could not) contain both experimental and control groups. The teacher variable is another factor which entered in as the study spanned more than one college. Although experimental control was sacrificed, the scope of this study was broadened by involving several colleges and the factors associated with these colleges. The study also crossed the three languages: French, Spanish and German.

The experimental and control students were so identified regardless of the specific college in which they were enrolled. The effect of this upon the statistical analysis was a tendency to make the statistical tests less sensitive to differences. The possibility also exists that some bias associated with specific colleges may have entered into the data. The writers recognize the above mentioned limitations. Nonetheless, the research was conducted under existing conditions similar to those found in foreign language instruction. The students of a specific college may be considered a representative cross-section of those students in the college taking instruction in a foreign language. The students of the eight colleges may be considered representative of students enrolled in liberal arts colleges similar to those of the ACM.

APPENDIX II

Form V—Germanophilia Scale

This is the "Germanophilia" scale. The greater the numerical value, the higher the student's Germanophilia score.

Name:_____ College_____ Class_____

The following statements are opinions which have been expressed concerning the Germans and their culture. Some people agree with these statements; others disagree. You are asked to mark each statement in the left-hand margin according to your agreement or disagreement, as follows:

+1: slight support, agreement	−1: slight opposition, disagreement
+2: moderate support, agreement	−2: moderate opposition, disagreement
+3: strong support, agreement	−3: strong opposition, disagreement

_____ 1. Germans contribute to the richness of our society.
_____ 2. They have produced outstanding artists and writers.
_____ 3. The more I get to know about Germany and the Germans, the more I want to be able to speak their language.
_____ 4. Germans are very democratic in their politics and their philosophy.
_____ 5. The old German folkways brought to our society have contributed greatly to our way of life.
_____ 6. Germans' undying faith in their religious beliefs is a positive force in the world.
_____ 7. The German has every reason to be proud of his race and of his traditions.
_____ 8. If the U. S. should lose the German influence, it would be a great loss.
_____ 9. Germans are much more polite than most Americans.
_____10. Germans are a very dependable people.
_____11. American children can learn much of value by associating with German playmates.
_____12. Germans set a good example for us by their family life.
_____13. We can learn better ways of cooking, entertaining, etc. from the Germans.
_____14. Germans are generous and hospitable to strangers.
_____15. Americans should make a greater effort to meet German people.
_____16. It is wrong to try to force a German to become American in his habits.
_____17. Compared to the people of Germany, Americans are more sincere and honest.

_____18. Family life is more important to Americans than it is to people in Germany.
_____19. Compared to Americans, the Germans are an unimaginative people.
_____20. Americans appreciate and understand the arts better than do most Germans.
_____21. The chief stimulants to basic institutions in Germany have come mainly from American ideas and doctrines.
_____22. American children are better mannered than German children.
_____23. The Germans would benefit if they adopted many aspects of American culture.
_____24. Few German universities can match the intellectual standing of our universities.
_____25. The German way of life seems crude when compared to ours.

APPENDIX III

Form XI, No 2—German People in Germany

Name_____ College_____ Class_____

It is important that you make a separate and independent judgment of each item. Do not look back to check what you marked on earlier scales. Try to keep your attention on the scale at hand. Work as rapidly as you can and do not worry or puzzle over individual items. It is your first impressions, the immediate "feeling" about concepts, that are of interest. On the other hand, please do not be careless, because we are very interested in your true impression.

Remember that this questionnaire will not be seen by anyone in this school or by any of the school authorities. Only the directors of this research project will have access to your answers.

You may turn to the first concept and begin as soon as you are ready.

1. interesting	:	:	:	:	:	:	:	: boring
2. prejudiced	:	:	:	:	:	:	:	: unprejudiced
3. brave	:	:	:	:	:	:	:	: cowardly
4. handsome	:	:	:	:	:	:	:	: ugly
5. colorful	:	:	:	:	:	:	:	: colorless
6. friendly	:	:	:	:	:	:	:	: unfriendly
7. honest	:	:	:	:	:	:	:	: dishonest
8. stupid	:	:	:	:	:	:	:	: smart
9. kind	:	:	:	:	:	:	:	: cruel
10. pleasant	:	:	:	:	:	:	:	: unpleasant
11. polite	:	:	:	:	:	:	:	: impolite
12. sincere	:	:	:	:	:	:	:	: insincere
13. successful	:	:	:	:	:	:	:	: unsuccessful
14. secure	:	:	:	:	:	:	:	: insecure
15. dependable	:	:	:	:	:	:	:	: undependable
16. permissive	:	:	:	:	:	:	:	: strict
17. leader	:	:	:	:	:	:	:	: follower
18. mature	:	:	:	:	:	:	:	: immature
19. stable	:	:	:	:	:	:	:	: unstable
20. happy	:	:	:	:	:	:	:	: sad
21. popular	:	:	:	:	:	:	:	: unpopular
22. hard working	:	:	:	:	:	:	:	: lazy
23. ambitious	:	:	:	:	:	:	:	: not ambitious